NON-PUBLIC?: N
ACCESSION #: 9005140251
LICENSEE EVENT REPORT (LER)

FACILITY NAME: RIVER BEND STATION PAGE: 1 OF 3

DOCKET NUMBER: 05000458

TITLE: RPS Actuation During Reactor Scram While Testing the Main Turbine Combined Intermediate Valves by Low EHC System Pressure
EVENT DATE: 04/07/90 LER #: 90-014-00 REPORT DATE: 05/07/90

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 079

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: L. A. England, Director-Nuclear Licensing

TELEPHONE: (504) 381-4145

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

At 0154 on 04/07/90 with the reactor at 79 percent power (Operational Condition 1), a reactor scram occurred while testing the main turbine combined intermediate valves (CIVs) (*V*). The scram occurred on low turbine electrohydraulic control (EHC) system pressure. This low pressure appears to have been due to multiple CIVs stroking when the #4 CIV was being tested. However, repeated testing failed to bring about a repetition of the event which caused the scram.

Corrective action included replacement of two solenoid valves, five relays, and the electrical trip valve. A modification has been installed to provide additional relay contacts between the CIVs and the test circuit. In addition, the valve testing procedure has been revised to require increased monitoring of valve position.

This event resulted in the actuation of the reactOr protection system (RPS). Therefore, this report is submitted pursuant to 10CFR50.73(a)(2)(iv). This event caused no adverse impact on the health and safety of the public.

END OF ABSTRACT

REPORTED CONDITION

At 0154 on 04/07/90 with the reactor at 79 percent power (Operational Condition 1), a reactor scram occurred while testing the main turbine combined intermediate valves (CIVs) (*V*). The scram occurred on low turbine electrohydraulic control (EHC) (*JE*) system pressure. This low pressure appears to have been due to multiple CIVs moving when the #4 CIV was being tested. However, repeated testing failed to bring about a repetition of the event which caused the scram.

This event resulted in the actuation of the reactor protection system (RPS). Therefore, this report is submitted pursuant to 10CFR50.73 (a)(2)(iv).

INVESTIGATION

GSU's investigation revealed that the scram was initiated by a low pressure signal from the emergency trip system (ETS) portion of the EHC system. This is a General Electric Mark II EHC unit (*HCU*). The EHC system supplies hydraulic fluid under pressure to operate the turbine control valves (TCVs) (*SCV*), turbine stop valves (TSVs) (*PCP*) and CIVs. The ETS system is supplied by an orificed branch off the EHC header. Low ETS pressure, which can be intentionally induced for a turbine trip, allows disk dump valves on each TCV, TSV and CIV to dump (quick release) the EHC fluid which is holding the valves open. This causes a rapid closure of the turbine valves.

This event occurred during the normal weekly turbine valve testing. The TCVs and TSVs had already been tested. CIV numbers 1, 2, and 3 had also been tested. Testing of #4 CIV was in progress. The valve was test closed, and then the test button was released per procedure. As the stop valve portion of the CIV reached approximately 35 percent open, a sudden loss of ETS pressure occurred. All EHC supplied turbine valves closed and the reactor scrammed. At the same time, the standby EHC pump automatically started due to low EHC pressure (1100 Psig).

Repeated CIV tests following the scram failed to bring about a recurrence of the event. In addition the TCV and TSV were tested satisfactorily. A test was performed in which two CIVs were stroked simultaneously, and the EHC/ETS system was able to maintain pressure. The system hydraulic components were also checked and no discrepancies were found. After replacing 2 solenoid valves on the #4 CIV and setting up the pressure compensator on the EHC pumps from 1550-1650 as a preventative measure, the reactor was restarted and the turbine was brought up to 1500 RPM for testing. During this testing of #1 CIV, as it was coming open, personnel noted that #2 and #4 CIVs were also coming open (these valves should already have been open). Although the closure of these 2 valves was not observed, it apparently occurred during the testing of #1 CIV. A recorder showed that ETS pressure

spiked (downward) to at least 800 psig. The scram setpoint is 530 Psig, so with the turbine operating, (using more EHC fluid) and the compensator set at 1550 Psig, it is possible that similar conditions could have been the root cause of the scram.

Further tests did not cause a repetition of this event. The turbine was taken off line and the testing logic of the CIVs was investigated. Four relays were selected for replacement based on the potential response of the system to their failure. During retesting, a fifth relay was replaced when it exhibited intermittent chatter and a "hum". Further retests at 1500 RPM produced no problems and the turbine was placed back on line. At approximately 20 percent power, the valves were tested again with no problems. The reactor power was then increased to 100 percent power. A review of prior LER submittals revealed no earlier occurrence similar to this event.

CORRECTIVE ACTION

As discussed in the previous section, two solenoid valves and five relays were replaced and the EHC pump compensator was set up (recalibrated). In addition, the following actions have been implemented:

1. The valve testing procedure was revised to require increased monitoring of the position of valves which are not being tested, with instructions on appropriate operator response if this occurs.

2. A modification has been installed interposing additional relay contacts between the CIVs and t:he test circuit to prevent spurious signals from reaching the CIVs not being tested.

3. The electrical trip valve has been replaced. The vendor recommended this because intermittent failure of this valve could cause a response similar to that observed.

The combination of these actions will ensure that this event does not recur.

SAFETY ASSESSMENT

The scram placed the plant in a safe shutdown condition. All other systems responded to this event according to design. Therefore, the health and safety of the public were not adversely affected by this event.

NOTE: Energy Industry Identification System Codes are identified in the text as (*XX*).

ATTACHMENT 1 TO 9005140251 PAGE 1 OF 1

GULF STATES UTILITIES COMPANY

May 7, 1990
RBG-32800
File Nos. G9.5, G9.25.1.3

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

River Bend Station - Unit 1
Docket No. 50-458

Please find enclosed Licensee Event Report No. 90-014 for River Bend Station - Unit 1. This report is being submitted pursuant to 10CFR50.73.

Sincerely,

W. H. Odell
Manager-Oversight
River Bend Nuclear Group

TFP/PDG/RGW/JHM/pg

cc: U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

NRC Resident Inspector
P.O. Box 1051
St. Francisville, LA 70775

INPO Records Center
1100 Circle 75 Parkway
Atlanta, GA 30339-3064

*** END OF DOCUMENT ***